Pollution Prevention Progress Report

U.S. Department of Energy ■ September 2000

Albuquerque Operations Office

Los Alamos National Laboratory

By segregating Resource Conservation and Recovery Act (RCRA) regulated waste from large amounts of recyclable metal, the Los Alamos Neutron Science Center was able to avoid the disposal of previously generated low-level mixed waste. This segregation activity reduced cleanup/stabilization low-level mixed waste by approximately 25 cubic meters, for a reported cost savings/avoidance of $265,000.

Chicago Operations Office

Argonne National Laboratory–East

Cleanup and housekeeping activities within existing site material storage areas enabled the diversion of precast concrete blocks awaiting disposal. Instead of disposing of the concrete blocks in a sanitary landfill, they were used as traffic control barriers, and to construct an enclosure for an outdoor Controlled Storage Area, avoiding disposal and construction material purchase costs. This recycle/reuse activity reduced routine operations sanitary waste by 2,553 metric tons, for a reported cost savings/avoidance of $100,000.

Fermi National Accelerator Laboratory

Two 15-ton helium tanks no longer used at the Laboratory were relocated and reused as part of facility upgrades. This recycle/reuse activity reduced routine operations sanitary waste by approximately 45 metric tons, for a reported cost savings/avoidance of $24,200.

Idaho Operations Office

Idaho National Engineering and Environmental Laboratory (INEEL)

The Idaho Nuclear Technology and Engineering Center shut down the coal-fired steam plant, and replaced it with oil-fired boilers, which will eliminate 6,800 pounds of chemical air emissions and 421 metric tons of ash annually. This source reduction activity reduced routine operations hazardous waste by approximately 108 metric tons, for a reported cost savings/avoidance of approximately $2.2 million.

Nevada Operations Office

Nevada Test Site

Wooden pallets were reused at the Nevada Operations Office. This recycle/reuse activity reduced routine operations sanitary waste by approximately five metric tons, for a reported cost savings/avoidance of $2,100.

Oakland Operations Office

Energy Technology Engineering Center

Hazardous sodium was converted to nonhazardous sodium hydroxide using the water vapor nitrogen process. This recycle/reuse activity reduced cleanup/stabilization hazardous waste by approximately two metric tons, for a reported cost savings/avoidance of $380,000.

Lawrence Livermore National Laboratory

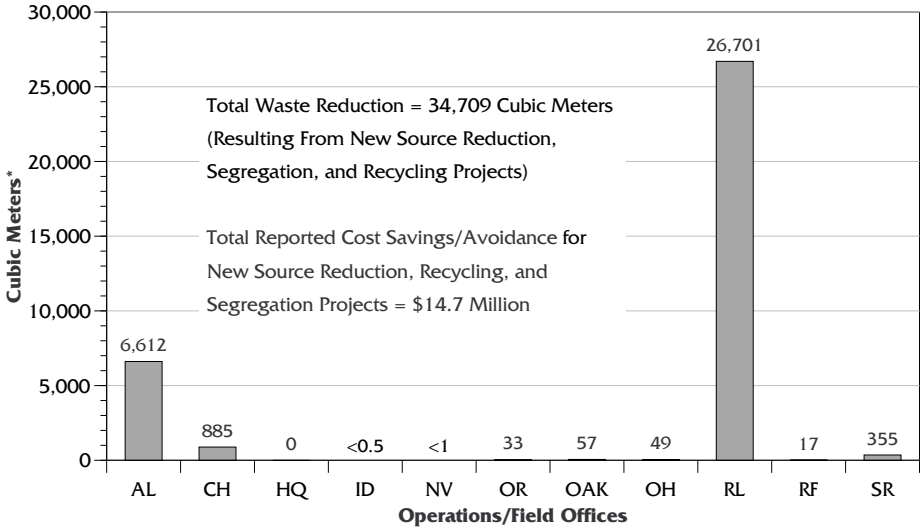
The Chemical Exchange Warehouse avoided costs from chemical disposal and the purchase of new chemicals by recycling existing quantities onsite. This recycle/reuse activity reduced routine operations hazardous waste by approximately one metric ton, for a reported cost savings/avoidance of $25,680.

PP Quarterly Facts

For New Projects Apr. '00 – Jun. '00

- *94 radioactive, mixed, and hazardous waste pollution prevention projects completed.*
- *34,709 cubic meters of radioactive, mixed, and hazardous waste reduced.*
- *$14.7 million reported cost savings/avoidance.*

Radioactive, Mixed, and Hazardous Waste Reductions for New Projects for All Operations Offices (Routine Operations and Cleanup/Stabilization), April 2000 – June 2000



*Assuming one cubic meter is equivalent to one metric ton.

Oak Ridge Operations Office

Paducah Gaseous Diffusion Plant

The reclassification of electrical impeders and transformers from polychlorinated biphenyl (PCB)-contaminated to non-PCB status has avoided the characterization, transportation, and disposal of used oil. This segregation activity reduced mixed TSCA (Toxic Substances Control Act) regulated cleanup/stabilization waste by approximately 29 cubic meters, for a reported cost savings/avoidance of $15,000.

Ohio Field Office

Columbus Environmental Management Project

Steel and aluminum were segregated, characterized, and radiologically free-released for commercial recycling. This segregation activity reduced cleanup/stabilization low-level radioactive waste by approximately eight cubic meters, for a reported cost savings/avoidance of $280,224.

West Valley Demonstration Project

The Analytical Process and Chemistry Laboratory made changes to reduce waste generation. The acid digestion of process samples was streamlined to reduce the volume of digestate and the number of containers produced during analysis. This source reduction activity reduced cleanup/stabilization transuranic waste by less than one cubic meter, for a reported cost savings/avoidance of $6,150.

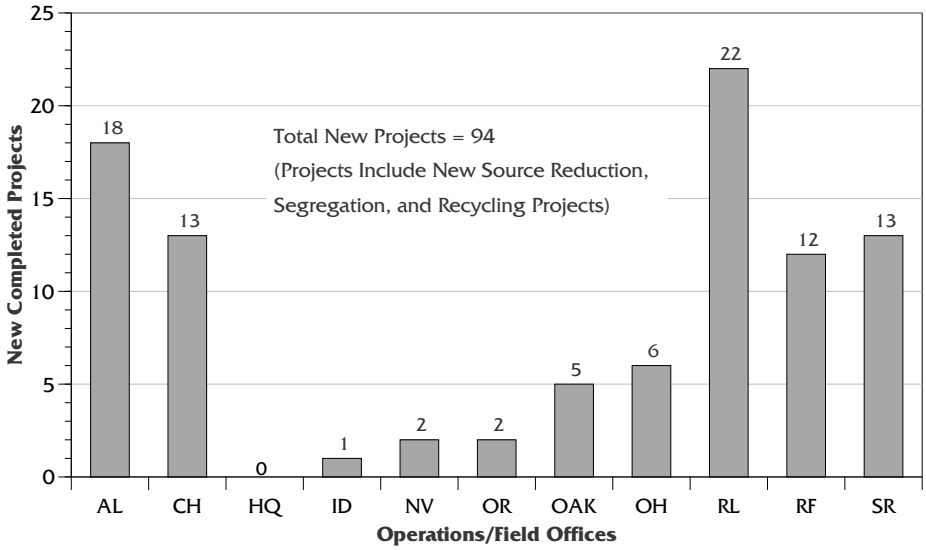
Richland Operations Office

Hanford Site

As a result of tests conducted at the 116-D-7 Waste Site to estimate hexavalent chromium sediment distribution coefficients and leachability, it was determined that no cleanup was needed. This source reduction activity reduced cleanup/stabilization hazardous waste by 24,918 metric tons, for a reported cost savings/avoidance of approximately $1.6 million.

The Vadose Zone Project reduced the size of the guide hole used during slant bore hole operations, reducing the potential amount of soil that would have been containerized as waste. Also, future soil derived from similar operations may be returned to the same location it was removed from, instead of being containerized as mixed waste. This source reduction activity reduced cleanup/stabilization low-level mixed

New Projects for Radioactive, Mixed, and Hazardous Wastes for All Operations Offices (Routine Operations and Cleanup/Stabilization), April 2000 – June 2000

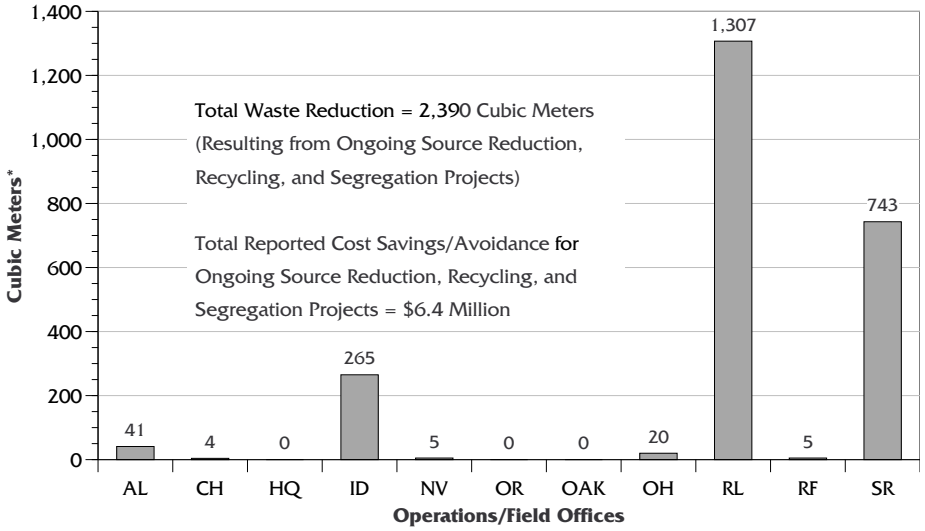


waste by 18 cubic meters, for a reported cost savings/avoidance of $200,000.

Pacific Northwest National Laboratory

During the project planning phase of an environmental research project, staff members identified an alternative process method to avoid the generation of contaminated Kaolin clay. The non-contaminated Kaolin clay resulting from the project was used as dust abatement, and as a liner for the City of Richland's recreational tracks (jet boat raceway, motocross and drag strip), instead of being disposed as hazardous waste. This source reduction activity reduced routine operations hazardous waste by approximately 66 metric tons, for a reported cost savings/avoidance of approximately $2.1 million.

Radioactive, Mixed, and Hazardous Waste Reductions for Ongoing Projects for All Operations Offices (Routine Operations and Cleanup/Stabilization), April 2000 – June 2000



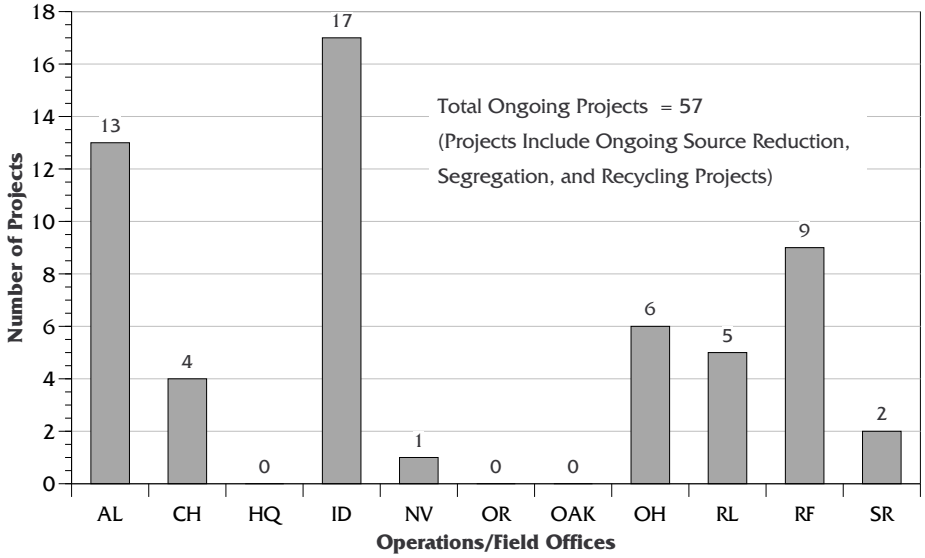
*Assuming one cubic meter is equivalent to one metric ton.

Rocky Flats Field Office

Rocky Flats Environmental Technology Site

Rocky Flats was faced with exorbitantly high cost options for disposing of high-plutonium and high-americium content radioactive transuranic waste due to limitations placed on the amount of radioactive materials allowed in 55-gallon drums destined for disposal at DOE's Waste Isolation Pilot Plant. As a cost effective solution, the use of pipe overpack containers and filtered bag-out bags was implemented. The pipe overpack container allows more radioactive material to be placed into each 55-gallon drum because it reduces the surface dose rate, while meeting all transportation and waste acceptance requirements. The advantage of the filtered bag-out bag is that it captures radioactive particles, but allows hydrogen gas to pass through, eliminating gas build up in the bag. In addition, the U.S. Nuclear Regulatory Commission permits higher fissile material quantities in transuranic waste drums when filtered bags are used, which enables four times the amount of fissile material to be placed into a waste drum, thus decreasing the number of drums generated by the same factor. Note that only secondary waste reduction and associated cost savings have been reported for this repackaging project. This source reduction activity reduced cleanup/stabilization transuranic waste by approximately 153 cubic meters, for a reported cost savings/avoidance of approximately $5.1 million.

Ongoing Projects for Radioactive, Mixed, and Hazardous Wastes for All Operations Offices (Routine Operations and Cleanup/Stabilization), April 2000 – June 2000



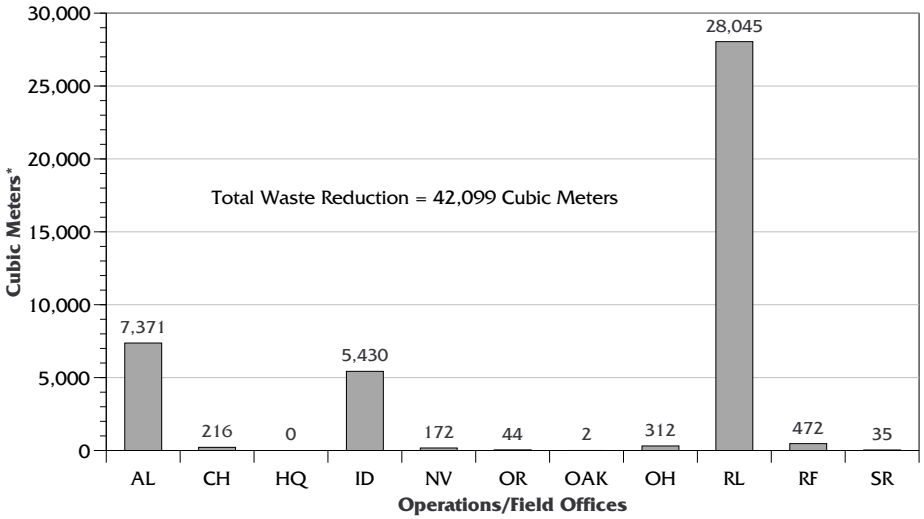
Pollution Prevention Recognition

*The **Argonne National Laboratory-East** received the White House "Closing the Circle" Award in recognition of its Affirmative Procurement program. As a result of the program, the Laboratory's percentage of purchases of recycled-content products increased to 70 percent in Fiscal Year 1999, as compared to 42 percent in Fiscal Year 1998, and 31 percent in Fiscal Year 1997.*

*The **Sandia National Laboratories/CA** worked with a contractor to incorporate pollution prevention and Affirmative Procurement language into their construction master specifications to encourage and require the use of recycled content materials and products in future renovation and new construction projects.*

*The Vehicle Maintenance Shop building at the **Idaho National Engineering and Environmental Laboratory** is becoming a "Green" building through the use of environmentally preferable equipment and materials. Examples include a hot water parts washer, a computerized paint system, mercury-free batteries, freon recovery, product substitution, alternate fuels (natural gas), and laundered rags.*

Cleanup/Stabilization Waste Reductions for All Operations Offices, April 2000 – June 2000



*Assuming one cubic meter is equivalent to one metric ton.

The Chemical Dispensary Program identifies onsite users for unneeded chemicals, or the chemicals are sold offsite, avoiding procurement and disposal costs. This recycle/reuse activity reduced cleanup/stabilization hazardous waste by less than one metric ton, for a reported cost savings/avoidance of $22,852.

Savannah River Operations Office

Savannah River Site

Two employees engineered a portable device called the "Super Sleever" that manually dispenses a plastic protective sheath/sleeve over long and comparatively narrow objects in less than a tenth of the time it takes to do it without the device. The Super Sleever enables the quick covering of items that are taken into Contamination Areas and Airborne Radioactivity areas, and can be used to sheath/sleeve cable, conductivity probes, hoses, cords, etc. This source reduction activity reduced routine operations low-level radioactive waste by approximately 120 cubic meters, for a reported cost savings/avoidance of $657,182.

A Sort and Free-Release Pilot (SFRP) program was implemented in the H-Area Facilities to address wastes generated at the Step-off pads in Radiological and Contaminated Areas. Previously, waste generated in these areas was classified as low-level radioactive, but by sorting and segregating clean waste from potentially contaminated waste, the amount of waste disposed has been reduced. This segregation activity reduced routine operations low-level radioactive waste by 68 cubic meters, for a reported cost savings/avoidance of $514,095.

For more information, please contact Christina Houston, Albuquerque National Pollution Prevention Program, at 505-845-5483, or via e-mail at chouston@doeal.gov.

This Report is also available on the EM-22 Web site at http://twilight.saic.com/WasteMin/quarter.htm.

9/26/00-EM-ch3367